OULU
BUSINESS SCHOOL

UNIVERSITY of OULU
OULUN YLIOPISTO

Tenttipäivä / Date: **19.3.2015**
Opintojakson koodi, nimi ja tentin numero / The code and the name of the course and number of the exam: **Cost Management Systems, 1st examination**
Tentaattori(t)/ Examiner(s): Janne Järvinen, Tiina Henttu-Aho
Sallitut apuvälineet rastitettu/ The devices allowed in the exam marked with a cross: X Laskin (ei graafinen/ohjelmoitava)/Calculator (not graphic, programmable) El Sanakirja/Dictionary
~~Muu materiaali, tarkennettu alla/Other material specified below El~~
Voit vastata tenttiin / You may answer the questions X suomeksi/ in Finnish   X englanniksi/ in English
Kysymyspaperi on palautettava / Paper with exam questions must be returned: Kyllä/Yes   X Ei/No

Kysymyksiin saa vastata suomeksi

This test has four questions and a maximum of 40 pts. Please use complete sentences when answering the essay questions (no bullets, lists etc.)!

1) Relating to reciprocal method in assigning resource costs to production cost centres.
   a) Illustrate how the method works
   b) What economic insights can be gained from using the method?
   c) How can the treatment of committed vs. flexible resources differ in this method?
   d) How can the method be used in assisting make-or-buy decisions?
   (10p).

2) Key concepts of Life-cycle costing and its role in cost-based decision making (10 pts)

3) Pitfalls of the DCF (discounted cash flow) method in evaluating strategic investments (according to Kaplan and Atkinson) (10 pts)

4) A healthcare company specializes in hip, knee and shoulder replacement operations, known as surgical procedures. As well as providing these surgical procedures the company offers pre operation and post operation in-patient care, in a fully equipped hospital, for those patients who will be undergoing the surgical procedures. Surgeons are paid a fixed fee for each surgical procedure they perform and an additional amount for any follow-up consultations. Post procedure follow-up consultations are only undertaken if there are any complications in relation to the surgical procedure. There is no additional fee charged to patients for any follow up consultations. All other staff are paid annual salaries.

The company's existing costing system uses *a single overhead rate, based on revenue*, to charge the costs of support activities to the procedures. Concern has been raised about the inaccuracy of

procedure costs and the company's accountant has initiated a *project* to implement an activity-based costing (ABC) system.

The project team has collected the following data on each of the procedures.

Procedure information	Hip	Knee	Shoulder
Fee charged to patients per procedure	$8000	$10 000	$6000
Number of procedures per annum	600	800	400
Average time per procedure	2.0 hours	1.2 hours	1.5 hours
Number of procedures per theatre session	2	1	4
In-patient days per procedure	3	2	1
Surgeon's fee per procedure	$1200	$1800	$1500
% of procedures with complications	8%	5%	10%
Surgeon's fee per follow up consultation	$300	$300	$300
Cost of medical supplies per procedure	$400	$200	$300

The project team has obtained the following information about the support activities.

Activity	Cost driver	Overheads
Theatre preparation for each session	Number of theatre preparations	864 000
Operating theatre usage	Procedure time	1 449 000
Nursing and ancillary services	In-patient days	5 428 000
Administration	Sales revenue	1 216 000
Other overheads	Number of procedures	923 000

Required:

(a) Calculate the profit per procedure for each of the three procedures, using the current basis for charging the costs of support activities to procedures (single overhead rate). (4p)

(b) Calculate the profit per procedure for each of the three procedures using activity-based costing (ABC). (4p)

(c) Discuss the ways in which the information obtained by the project team may be of benefit to the management of the company. (2p)

Copy following tables to your answering paper if needed and fill in there: Please remember to show all the calculations.

(a) Profitability analysis using the current system:

	Hip $	Knee $	Shoulder $
Fee charged to patient			
Surgeon's fee			
Fee for follow-up consultations			
Medical supplies			
Overhead cost			
Profit per procedure			

(b) Activity-based costing

1st step: Calculation of cost drivers (ABC):

Activity	Cost Driver	Overheads	No. of cost drivers	Cost per driver $
Theatre preparation for each session				
Operating theatre usage				
Nursing and ancillary services				
Administration				
Other overheads				

2nd step: ABC overhead cost per procedure:

Activity	Hip	Knee	Shoulder
Theatre preparation for each session			
Operating theatre usage			
Nursing and ancillary services			
Administration			
Other overheads			
Total overhead cost per procedure			

3rd step: Profit per procedure (ABC):

	Hip $	Knee $	Shoulder $
Fees charged to patients			
Surgeon's fee			
Fee for follow-up consultations			
Medical supplies			
Overhead cost			
Profit per procedure			

Finally, don't forget to answer the sub question (c), it's worth two points !